



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/788,497	02/21/2001	Naoki Miyano	0717-0459P	6768

2292 7590 04/29/2005

BIRCH STEWART KOLASCH & BIRCH
PO BOX 747
FALLS CHURCH, VA 22040-0747

EXAMINER

DASTOURI, MEHRDAD

ART UNIT	PAPER NUMBER
----------	--------------

2623

DATE MAILED: 04/29/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/788,497

Applicant(s)

MIYANO ET AL.

Examiner

Mehrdad Dastouri

Art Unit

2623

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 February 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on February 25, 2005 has been entered.

Response to Amendment

2. Applicants' amendment filed February 25, 2005, has been entered and made of record.

Response to Arguments

3. Applicants' arguments have been fully considered but they are not persuasive. Applicants have referred to the detailed arguments submitted in the After Final reply dated December 27, 2004, regarding Claim 1 grounds of rejection.

Applicants are respectfully directed to the response to these arguments set forth in the Advisory Action mailed January 18, 2005.

It is further submitted that Watkins et al. disclose a right infrared camera and a left infrared camera, a right visible light camera and a left visible light camera as shown in Figure 1 (Col. 2, Lines 13-43). Watkins further discloses an image synthesis apparatus for synthesizing data output from the right infrared camera and the left infrared camera and data output from the right visible light camera and the left visible

Art Unit: 2623

light camera so that a 3-D thermal image and a 3-D visible light image are observed by an observer as overlapping each other (Col. 2, Lines 44-67; Abstract).

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 1 and 7-9 are rejected under 35 U.S.C. 102(e) as being anticipated by Watkins et al. (6,597,807).

Regarding Claim 1, Watkins et al. ("Watkins") discloses a right infrared camera and a left infrared camera, a right visible light camera and a left visible light camera (Figure 1; Col. 2, Lines 13-43), and a first image synthesis processing device for synthesizing data output from the right infrared camera and the left infrared camera and data output from the right visible light camera and the left visible light camera so that a 3-D thermal image and a 3-D visible light image are observed by an observer as overlapping each other (Col. 2, Lines 44-67; Abstract).

Regarding Claim 7, Watkins discloses a second image synthesis processing device for synthesizing right infrared image data output from the right infrared camera and left infrared image data output from the left infrared camera so as to generate 3-D thermal image data, a third image synthesis processing device for synthesizing right visible light image data output from the right visible light camera and left visible light

Art Unit: 2623

image data output from the left visible light camera so as to generate 3-D visible light image data, and a fourth image synthesis processing device for synthesizing the 3-D thermal image data and the 3-D visible light image data so as to generate 3-D overall image data (Figure 1; Col. 2, Lines 44-67; Col. 6, Lines 39-46).

Regarding Claim 8, Watkins discloses the 3-D thermal image data including a plurality of temperature levels, and a plurality of color tones respectively assigned to the plurality of temperature levels (Col. 6, Lines 13-35; Figure 2d).

Regarding Claim 9, Watkins discloses obtaining 3-D overall image data, thereby including 3-D coordinate data (Col. 2, Lines 13-43). Watkins further discloses displaying the 3-D overall image on a monitor (Col. 2, Lines 44-46; Figure 2), thereby converting it into 2-D by transforming the 3-D coordinate data into 2-D coordinate data projected on to a prescribed plane in a 3-D coordinate space.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 2-4 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Watkins et al. (6,597,807) as applied to claim 1 above, and further in view of Sogawa (6,396,946).

Regarding Claim 2, Watkins discloses a second image synthesis processing device for synthesizing at least a portion of right infrared image data output from the

Art Unit: 2623

right infrared camera and at least a portion of right visible light image data output from the right visible light camera so as to generate right synthesis image data (Figure 1), a third image synthesis processing device for synthesizing at least a portion of left infrared image data output from the left infrared camera and at least a portion of left visible light image data output from the left visible light camera so as to generate a left synthesis image data (Figure 1), and a data output device for outputting the right synthesis image data and the left synthesis image data in a prescribed order (Col. 2, Lines 13-43).

Watkins does not appear to explicitly state a synchronous signal generator for generating a synchronous signal. However Sogawa teaches that it is known to include a synchronous signal generator for generating a synchronous signal (Col. 2, Lines 41-58).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have modified the image synthesis disclosed by Watkins to expressly indicate the use of a synchronous signal generator as taught by Sogawa because it is a well known methodology routinely implemented in the art to control synthesizing signals.

Regarding Claim 3, Watkins discloses the second image synthesis processing device synthesizes a portion of the right infrared image data and the entire right visible light image data, and the third image synthesis processing device synthesizes a portion of the left infrared image data and the entire left visible light image data (Col. 2, Lines 13-43).

Regarding Claim 4, Watkins discloses including a monitor for displaying a right synthesis image and a left synthesis image in a prescribed order based on the right

Art Unit: 2623

synthesis image data and the left synthesis image data, which are output from the data output device (Figure 2; Col. 3, Lines 14-22).

Regarding Claim 6, the arguments analogous to those presented above for claim 2 are applicable to Claim 6. Watkins disclose a data output device for outputting right infrared image data output from the right infrared camera, right visible light image data output from the right visible light camera, left infrared image data output from the left infrared camera, and left visible light image data output from the left visible light camera in a prescribed order (Col. 2, Lines 13-43; Figure 1).

5. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Watkins et al. (6,597,807) in view of Sogawa (6,396,946) as applied to claim 4 above, and further in view of Freeman et al. (6,640,130).

Regarding Claim 5, Watkins and Sogawa do not appear to recognize including a polarizer for polarizing the right synthesis image in a first direction and polarizing the left in a second direction different from the first. However, Freeman et al. ("Freeman") teaches that it is known to include a polarizer.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have modified the right and left synthesis images disclosed by Watkins and Sogawa to include a polarizer as taught by Freeman because it enhances signatures for various targets.

6. Claims 10 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Watkins et al. (6,597,807) in view of Higuchi et al. (5,129,010).

Regarding Claim 10, Watkins discloses a plurality of infrared cameras provided in a direction substantially perpendicular to a direction in which the infrared is directed

Art Unit: 2623

toward a subject (Figure 1), a plurality of visible light cameras provided in a direction substantially perpendicular to a direction in which the visible light images a subject (Figure 1; Col. 2, Lines 13-43), and

an image synthesis processing device for synthesizing a plurality of thermal image data output from the plurality of thermal image data output from the plurality of infrared cameras so as to generate 3-D thermal image data (Col. 2, Lines 13-43), and

said image synthesis processing device synthesizing a plurality of visible light image data from the plurality of visible light cameras so as to generate 3-D visible light image data (Col. 2, Lines 13-43).

Watkins does not recognize using a slit device including a plurality of slits and an infrared directing device for directing infrared toward a subject through the slit device. However, Higuchi et al. ("Higuchi") discloses that it is known to use a slit device and an infrared directive device for directing infrared toward a subject through the slit device (Col. 1, Lines 17-31).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have modified the infrared disclosed by Watkins to include a slit device as taught by Higuchi because it is well known directing device routinely utilized in 3-D imaging.

Regarding Claim 11, Watkins discloses the image synthesis processing device generates 3-D thermal image data based on a difference in shape between heat ray patterns reflected by the subject and respectively imaged by the plurality of infrared cameras (Col. 6, Lines 39-46).

Contact Information

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mehrdad Dastouri whose telephone number is (571) 272-7418. The examiner can normally be reached on Mon-Thurs 8:00 - 5:30 and every other Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amelia Au can be reached on (571) 272-7414. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Mehrdad Dastouri
Primary Examiner
Art Unit 2623
April 26, 2005

**MEHRDAD DASTOURI
PRIMARY EXAMINER**

Mehrdad Dastouri